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DRAWINGS ATTACHED

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(54) KNITTED GARMENTS AND IMPROVED METHODS OF PRODUCING THE SAME

(71) We, THE BENTLEY ENGINEERING COMPANY LIMITED, a British Company, of Comet Works, New Bridge Street, Leicester, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to knitted body garments, particularly those of the class which are produced by weft knitting.

The invention is more especially concerned with weft knitted body garments for feminine wear which are made to fit the upper part or bust or/and the lower part of the trunk including, if desirable, at least the upper portions of the thighs of the wearer.

Thus, the invention is separately applicable to what are colloquially called "tops" and "bottoms" and also to combined tops and bottoms. For instance, so far as swimwear is concerned, the invention may be applied both to a one-piece swimsuit, as well as to swimwear comprising separate brassiere and brief sections. Bra dresses are another possible application in that they are "extended tops". The invention is also applicable to one-piece foundation garments, so-called body stockings, pantie corselets, sports underfashions and the like.

The primary object of the present invention is to provide generally improved methods of machine knitting such body garments whereby specially shaped and snugly fitting parts of the garments can be speedily produced without resort, as heretofore, to tedious cutting and seaming operations.

According to this invention there is provided a method of producing a weft-knitted body garment initially made as a seamless tube and having at least two circumferentially spaced parts shaped by virtue of having fullness. This method is performed on a circular knitting machine of the independent latch needle type

having a circle of needles and either one feeding and knitting position or two diametrically opposite feeding and knitting positions equipped or each equipped with cams for knitting both during rotation and during oscillation and with means for progressively directing needles into loop-holding inactivity, in a narrowing operation, and also progressively re-directing said needles from such inactivity into knitting activity, during a widening operation. The method is characterised in that the aforesaid circumferentially spaced parts of the body garment are knitted in the form of pouches or pockets at the aforementioned one or two feeding and knitting positions by narrowing and widening operations during reciprocatory knitting—the integral narrowed and widened portions of each pouch or pocket either being connected, or having the outer limits thereof defined, by suture lines.

It is principally the intention to perform this method on a circular knitting machine having two diametrically opposite feeding and knitting positions each equipped with a knitting system as defined in the last preceding paragraph, in which case the weft knitted garment body is simultaneously formed with two pouches or pockets by narrowing and widening operations during reciprocatory knitting at both of the aforesaid diametrically opposite feeding and knitting positions.

Instead, however, of knitting two pouches or pockets simultaneously by employing two knitting systems as just mentioned, the pouches or pockets may be knitted one after the other—by employing one only of these systems and by shogging the needle cylinder through 180° after one pouch has been knitted and in preparation for knitting of the other.

An important aspect of the present invention resides in knitting into tubularly knitted body fabric, at circumferentially spaced locations around the tube, two permanent pouches or pockets destined ultimately to form breast-

covering and supporting cups. The shape of such a breast cup is, therefore, actually knitted into a top, or into the upper part of a longer body garment, thereby obviating any necessity to use shape-imparting foam or equivalent cups and eliminating all cutting and seaming operations in these regions.

Another aspect of the invention consists in forming in, say, a tubularly weft knitted brief or lower section of a body garment two leg openings the fabric margins around which, together with the intermediate crotch portion, are seamless but at the same time snugly fitting. Such leg openings are produced, in accordance with another feature of this invention, by initially forming, at diametrically opposite sides of the tubularly weft knitted body fabric, two oppositely-handed pouches or pockets, (i.e. one left-hand and the other right-hand) which are subsequently cut to form the said openings.

The cut edges of leg openings formed in this way may be finished by sewing or overlocking, or by the application thereto of any suitable form of decorative ribbon, tape or equivalent of an elasticated or stretch character.

One and the same one-piece body garment may be formed both with breast cups and with sutured crotch area adjoining the leg openings by the hereinbefore characteristic methods of this invention involving respectively the permanent and the temporary formation of pairs of pouches or pockets.

Or, as previously implied, a pair of permanent reciprocatingly knitted pouches or pockets constituting breast cups may be produced on a separate top or/and a pair of leg openings, produced by cutting formed pouches or pockets, may be produced in a brief or a separate bottom section of a body garment.

Yet another important aspect of the invention resides in the production of a one-piece body garment by appropriately cutting and seaming a single weft knitted tubular blank having formed therein two walewise-spaced pairs of reciprocatingly knitted pouches or pockets.

In order that the invention may be more clearly understood and readily carried into practical effect, specific garments made in accordance therewith will now be described with reference to the accompanying diagrammatic drawings, wherein,

Figure 1 represents a weft knitted tubular blank from which can be made a one-piece article of swimwear or a foundation garment,

Figure 2 is a further similar view of the said blank after a first cut has been made therein,

Figure 3 illustrates the front of the cut blank as it appears when opened and laid out flat,

Figure 4 depicts the blank after it has been further cut, folded and seamed to produce the one-piece body garment,

Figure 5 is an elevational view of another weft knitted tubular blank, as laid out in a flat condition and from which can be made a ladies jumper or the like,

Figure 6 is a rear view of the said blank showing a line along which it is cut open longitudinally,

Figure 7 illustrates the same blank laid out flat and having a neck opening cut out therefrom,

Figure 8 shows a bra for swimwear or underwear produced in accordance with the invention,

Figure 9 represents a needle arrangement in a circular weft knitting machine suitable for producing the bra illustrated in Figure 8,

Figure 10 is a front view of an alternative form of bra with shoulder straps and widened at the front,

Figure 11 is a needle layout used in the knitting of the bra shown in Figure 10,

Figures 12 and 13 show respectively the front and the rear of a still further pouched tubular blank, suitable for making up into trousers or drawers,

Figure 14 illustrates the last mentioned blank when suitably cut open and laid out flat, and

Figure 15 represents the completed trousers or drawers.

Referring to Figure 1, the seamless weft knitted tube 10 is formed, near its upper end at diametrically opposite sides thereof, with two reciprocatingly knitted permanent pouches or pockets 11, 12 destined to provide shaped breast-cups. Suitably spaced walewise, i.e. axially, along the tube 10—below the pouches or pockets 11, 12 and also at diametrically opposite sides of the tube 10—is a pair of reciprocatingly knitted temporary pouches or pockets 13, 14. A free portions 10a of the weft knitted tube 10 extends downwardly beneath the pouches or pockets 13, 14.

A single and continuous walewise-extending cut or slit is first made in the side of the tubular blank from one end thereof to the other, as shown in Figure 2, the separated cut edges produced as a consequence being designated AB, AB.

The slit blank is thereupon opened out and laid flat as illustrated in Figure 3, after which the two temporary pouches or pockets 13, 14 are cut along the lines C—D to form leg openings in the blank. These leg openings are shown to advantage at E in Figure 4.

Thereafter, the lower depending section 10a of the slit and opened out blank is folded rearwardly and upwardly along the cut lines C—D, as shown in Figure 4, the portions of the then adjoining cut edges extending between the points B and C being seamed together. The length of the lower depending section 10a of the blank will, of course, determine the height of the upper edge 10b of the back

of the garment—which may be high or low as desired.

Naturally, both the upper front portion 10c of the garment above the breast cups 11, 12, as well as the upper edge 10b of the back may, if desired, be suitably shaped by cutting in which instance the cut edges would be finished—preferably in the same or in a similar fashion to the leg openings E.

Referring now to Figures 5 and 6, it will be seen that the seamless weft knitted tube 15 incorporates at diametrically opposite sides thereof two reciprocatingly knitted permanent breast pouches or pockets 16, 17 which are to constitute the bust-covering portion of the jumper or the like. These pouches or pockets are disposed nearer to one end of the tube 15 than the other. In Figure 6 are shown the commencements of the sutures 16b and 17a of these two pouches or pockets—with an arc formed by inactive needles separating them.

In order to provide adequate fabric at the trunk sides to be included in the side seams of the finished jumper or the like into which fabric sutures do not extend, a relevant group of needles may be inactivated at the commencement of reciprocatory knitting during the production of the initially tubular blank 15. This also reduces the size of the pouches or pockets 16, 17 to more practical proportions than those knitted on a full half circle of needles.

One layer of fabric only of the initially tubular blank 15 is cut along the walewise-extending line X—X (Figure 6) to enable the blank to be opened out and laid flat as shown in Figure 7. As will be seen, the pouch sutures 16b and 17a adjoin at the centre of the laid out blank. "Unfashioned" wales, adjoining the outer sides of the pouches or pockets and forming the walewise-extending free margins of the opened out blank are destined to form the sides of the trunk portion of the jumper, i.e. the portion under the arms.

The opened out blank is folded in two transversely along the line Y—Y midway between its ends to define the tops of the shoulders. A portion of the fabric is cut out at 18 to provide a neck opening, and the walewise-extending edges of the blank are shaped, by cutting, at 19 and 20 to define edges of arm holes. The jumper is completed, after folding the opened out blank along the line Y—Y, by seaming the sides below the arm holes, the performance of a welting operation and finishing of the neck opening, as desired. Sleeves of any appropriate length may be added, according to requirements.

The body embracing hoop of the bra 21 for swimwear or underwear shown in Figure 8 is for the most part produced by knitting in a suitable stretch yarn sufficient wales in 1/1 rib. But, after first knitting a welt W and a few courses of rib, a sufficient number of needles to knit, by reciprocation, two breast

pouches or pockets 22 and 23 are transferred down from the top needle cylinder into the bottom needle cylinder for knitting plain. This transference of needles thus takes place before commencing reciprocatory knitting, and the pouches or pockets 22 and 23 become integral portions of the body-embracing hoop to provide a bikini type top.

The needle arrangement for knitting the said two pouches or pockets is diagrammatically illustrated in Figure 9. With a quarter, or a little less than a quarter, of the total number of the circle of needles arranged at 22a to knit the pouch or pocket 22, and a similar number of needles arranged at 23a to knit the pouch or pocket 23, the said pouches or pockets are knitted—one at each of two feeds, by narrowing with 'up' pickers. However, since the disposition of the needles remaining active would not enable the widening pickers to function with the normal amount of cylinder swing, the machine is caused to change to circular knitting and all needles, rendered inoperative by the narrowing pickers, are then brought into operation "en masse". The number of part courses in the pouches may be increased to provide increased garment size, by controlling the 'up' pickers, so that they work only alternate swings instead of every swing in a particular direction during the first few narrowing operations. This, of course, produces a 'pin hole' suture in those areas. During the pouch knitting, the remaining half circle (or just over) of needles retain their rib arrangement and are rendered inoperative 'en masse' in a similar manner to the instep needles during the production of a sock.

After a few more courses of rib knitting with the machine in circular motion, a roll welt is thereupon produced in the same manner as a cuff welt on a jumper blank. This provides a suitable top edge to the garment with the following courses turned under and hemmed, assuming that no edging is to be attached in subsequent finishing operations.

If it is desired that a bra like that just described with reference to Figure 8 should be provided with integrally knit straps to fit over the shoulders, then such straps may be made as follows: Following the circular courses after the pouch knitting, a further sequence of reciprocatory knitting is commenced. All needles, except two small arcs thereof aligned with the pouch-producing needles, are raised collectively to a high inactive position. Each of the two small arcs or needles then knit, without any picking taking place, so that one produces a selvaged fabric strip at one feed and the other another similar strip at the other feed. When sufficient lengths of strapping have been produced, the machine is restored to circular knitting for making a separation course before commencing the next article. The end of each strap will then be freed by removal of a drawthread so that it can be

attached to the back section of the bra hoop by a seaming operation.

With regard to the bra with shoulder straps and widened at the front illustrated in Figure 10, this is knitted in the opposite direction to the bra previously described with reference to Figure 8. Thus, the two straps 27 are knitted first, being wale-fashioned at their inner end portions to form the top areas of the reciprocatingly knitted pouches or pockets 28 and 29. The bottom areas of these pouches or pockets are then formed by the conventional pouch-producing method of knitting part courses with progressive needle picking.

The arcs H and I of needles (see Figure 11) on which the fashioned areas are made, each comprise over a third of the total number of needles in the circle, and the fabric produced on the remaining arc of needles is split into halves on the centre line J—J.

The garment blank 30 shown in Figure 10 accordingly consists of two pouched areas to cover the wearer's breasts above which areas are the straps 27 to fit over the shoulders, and portions of fabric constituting extensions of the outer sides of the pouches or pockets 28 and 29 designed to reach under the wearer's arms and to be joined to the said shoulder straps. These extensions, designated 31, constitute back straps. An additional section, e.g. in the form of a wide elasticated band, can then be inserted at the back of the garment to complete the hoop by connecting the back straps 31 and so bridging the gap between the shoulder blades. This particular garment blank is made by the sequence of operations now to be described. After knitting a separation course and welt, the majority of the needles on which the widest part of the shoulder straps are made, are pressed off whereupon their latches are opened as they are raised to a high inactive track. At the same time, the arcs of needles for the back straps 31 are raised but permitted to retain their loops as the machine changes to reciprocatory knitting. It is to be noted that the two arcs F and G of needles in Figure 11 do not press off their loops as these needles knit the parallel strips which form the shoulder straps 27. Reciprocatory knitting enables one of these groups to knit a selvaged shoulder strap at one feed while the other group does likewise at the other feed.

When widening of the shoulder straps is required, the widening (down) picker for each group is put into action to increase progressively the number of active needles. These empty needles join the trailing end of a group as it knits a further course, and the fact that all top cylinder sliders are down at an inactive position ensures that the needle latches do not close and prevent new loops forming in the hooks. When all empty needles have been returned to knitting activity, all needles except those of the arcs F and G are collectively raised to inoperative positions but retain their

last knitted loops. Progressive widening thereupon takes place in the manner normal for pouch knitting.

The machine then changes to circular knitting to complete enough courses for a sufficient depth of fabric for the back straps 31 which, if knitted of stretchable yarn on 1/1 rib should, when split, be enabled to reach well under the arms and round the shoulder blades. A roll welt for the bottom of the garment, complete with turn-under courses if required, can then be made or, in cases where edge trimming is to be attached later, the next garment can then be commenced.

A method of making trousers or drawers is shown in Figures 12, 13, 14 and 15. A tube of fabric is knitted, starting at end K (Figure 12), and when sufficient fabric is made to provide a trunk portion, two arcs of needles responsible for knitting the wales O—Q and O'—Q' (Figure 13) are caused to hold their loops while the needles at L—O and L'—O' continue knitting by reciprocation. As the needles of group L—O knit a yarn fed in at one knitting station and the needles L'—O' knit a yarn fed in at another knitting station, selvages are formed at adjacent wales along the edges L—M and L'—M'. Progressive widening takes place until the wales P and P' are reached, thus forming sutures O—P and O'—P'.

Knitting continues from this stage with progressive narrowing until only the needles of wales M—R and M'—R' are knitting and then the needles of wales R—Q and R' to Q are introduced en masse thus forming the sutures R—P and R'—P'. The knitting of the fabric is continued until the end N is reached. Ends K and N may include ribbed edges and welts, and also anti-run hems, as required.

Figure 14 shows the initially tubular blank cut open by slitting it walewise from the selvaged edges L—M and L'—M' to the ends K and N and laid out flat. The reciprocatorily knitted portions of fabric are cut transversely and 'edged' at positions 32 and 33 and then the blank is folded about the line of the transverse cuts to bring the ends K—K' and N—N' into line with one another. The edges are seamed from the outer corners of the leg openings to the tops NK and N'K' respectively to form trousers or drawers as shown in Figure 15 with leg openings 32 and 33.

As will be appreciated, by variations in the nature of the yarns or fibres used, by quality, i.e. stitch length, changes, variations in yarn tension and variations in the knitted structure, or any combination of these, further shaping of a body garment produced according to this invention may be achieved. Particularly may certain of these techniques be adopted to shape a tubularly knitted blank at a location which is eventually to become the waist of a garment.

A body stocking made according to this

invention may have a pair of separately produced stockings with extra long thigh portions secured by stitching to leg openings of a one-piece body garment produced as hereinbefore described. Such garments could be developed

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into ski cat-suits with or without attached hood, or culotte outfits.

Tubular body garment blanks as set out in the foregoing specific description, are produced on a circular knitting machine of the independent latch needle type having a circle of needles and preferably two knitting and feeding positions each equipped with cams for knitting both during rotation and during oscillation and with known means for both progressively directing needles into loop-holding inactivity and also progressively directing them from such inactivity into knitting activity. Moreover, and especially for the knitting of certain garments, such a circular knitting machine is preferably of the double axially opposed needle cylinder type comprising a bottom plain needle cylinder, a top rib needle cylinder, a circular series of double-ended latch needles operable in said cylinders, needle-actuating sliders in both cylinders and means for transferring needles from one cylinder to the other, according to requirements. It is, of course, a circular machine of the double axially opposed needle cylinder type which is referred to in parts of the foregoing description, e.g. those relating to the manufacture of the articles illustrated in Figures 8 and 10.

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It would also be possible to construct a dress generally in accordance with the method described with reference to Figures 5—7 by the use of an elastomeric yarn in specific bands around the body. The breast pockets or pouches would be knitted on part of the circumference of the top section, and by employing a large diameter machine sufficient fullness could be achieved for the lower, i.e. skirt, section of the garment. The dress would have a cut neck and shoulders as required, and since the skirt section would be without any elastomeric yarn, this would cause rouching at the waist. The back and front of such a garment could be knitted continuously.

WHAT WE CLAIM IS:—

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1. A method of producing, on a circular knitting machine of the independent latch needle type having a circle of needles and either one feeding and knitting position or two diametrically opposite feeding and knitting positions equipped or each equipped with cams for knitting both during rotation and during oscillation and with means for progressively directing needles into loop-holding inactivity, in a narrowing operation, and also progressively re-directing said needles from such inactivity into knitting activity, during a widening operation, a weft knitted body garment initially made as a seamless tube and having at least two circumferentially spaced

parts shaped by virtue of having fullness, said method being characterised in that the two circumferentially spaced parts are knitted in the form of pouches or pockets at the aforementioned one or two feeding and knitting positions by narrowing and widening operations during reciprocatory knitting—the integral narrowed and widened portions of each pouch or pocket either being connected or having the outer limits thereof defined, by suture lines.

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2. A method according to Claim 1 performed on a circular knitting machine having two diametrically opposite feeding and knitting positions and wherein the weft knitted garment body is simultaneously formed with two pouches or pockets by narrowing and widening operations during reciprocatory knitting at both of the aforesaid diametrically opposite feeding and knitting positions.

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3. A method according to Claim 1 performed on a circular knitting machine having only one knitting system, and wherein the weft knitted garment is produced with two circumferentially spaced pouches or pockets knitted one after the other, the needle cylinder of the machine being circumferentially shogged after one of these pouches or pockets has been knitted and in preparation for knitting of the other.

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4. A method according to Claim 1, 2 or 3 comprising knitting into the tubularly knitted body fabric, at circumferentially spaced locations around the tube, two permanent pouches or pockets destined ultimately to form breast-covering and supporting cups.

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5. A method according to Claim 1, 2 or 3, which includes producing leg openings in the tubularly knitted body fabric by initially forming at diametrically opposite sides of the tube two oppositely-handed pouches or pockets which are subsequently cut to form the said openings, whereby the crotch portion intermediate the fabric margins around the said openings is seamless.

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6. Forming single-piece weft knitted body garment with breast cups and legs openings by the methods claimed in Claims 4 and 5 respectively.

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7. A method of producing separate top, e.g. a bra for swimwear or underwear having a pair of reciprocatingly knitted pouches or pockets to provide breast cups substantially as herein described with reference either to and as shown in Figure 8 or to and as shown in Figure 10 of the accompanying drawings.

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8. A method according to claim 5, wherein the leg openings are formed in a brief or a separate bottom section of a body garment.

9. A method according to claim 2 or 3, wherein a single weft knitted tubular blank having formed therein at diametrically opposite sides thereof two walewise-spaced upper and lower pairs of reciprocatingly knitted pouches

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or pockets is cut and seamed to produce a one-piece body garment.

10. A method of producing a one-piece body garment from a weft knitted tubular blank as defined in Claim 9 and having a free portion of the tube extending beyond the lower pair of pouches or pockets, said method including the steps of making a single and continuous slit in a side of the tubular blank from one end thereof to the other; opening out and laying flat the slit blank; cutting across each of the lower pair of pouches or pockets to convert them into leg openings; folding rearwardly and upwardly the extended free portion of the opened out blank along lines of the cuts made in the lower pair of pouches or pockets; and seaming together the portions of the then adjoining cut side edges of the blank, the length of the aforesaid extended free portion determining the height (with the garment in wear) of the upper edge of the back of the garment.

11. A method according to Claim 4 of producing a jumper or the like comprising the steps of knitting the two breast pouches or pockets nearer to one end than the other of the initially tubular blank; slitting the blank walewise from end to end and opening it out flat; folding the opened out blank in two along a transverse line midway between its ends to define the tops of the shoulders; cutting out a portion of the fabric on this line to provide a neck opening; shaping the walewise-extending edges of the blank, by cutting, to define edges of arm holes; and seaming together the then adjoining walewise-extending edges below the arm holes.

12. A method as claimed in Claim 11, wherein in order to provide at the sides of the blank adequate fabric to be included in the side seams of the finished jumper or the like, a relevant group of the needles of the machine on which the initially tubular blank is knitted are inactivated while reciprocatory knitting takes place to produce the breast pouches or pockets.

13. A method according to Claim 7 of producing a bra for swimwear or underwear which consists in knitting a plurality of wales of rib fabric to form a body hoop and incorporating into the front of said hoop so as to be integral therewith reciprocatingly knitted breast pouches of plain fabric.

14. A method as claimed in Claim 13, performed on a circular knitting machine of the double axially opposed needle cylinder type equipped with double-ended latch needles, wherein after knitting a welt and a few courses of rib on needles operating in both cylinders, a sufficient number of needles to knit, by reciprocation, the breast pouches are transferred down from the top needle cylinder into the bottom needle cylinder, the needles for knitting the said pouches being arranged substantially as shown in Figure 9 of the accom-

panying drawings and the pouches being knitted, with the assistance of pickers.

15. A method as claimed in Claims 13 and 14, wherein following the knitting of circular courses after the formation of the breast pouches, all the needles except two small arcs thereof at pouch-producing locations are raised collectively to a high inactive position, whereupon each of the two small arcs of needles are caused, without any picking action, to knit by reciprocation at respectively different feeds so that a selvaged fabric strap is formed on one of the said arcs of needles at one feed and a similar selvaged strap is formed on the other arc of needles at another feed, these integral straps being designed to fit over the wearer's shoulders.

16. A method according to Claim 15, wherein portions of fabric constituting back straps extending from the outer sides of the breast pouches are knitted to reach under the wearer's arms and to be joined to the shoulder straps, an additional elasticated section being inserted at the back of the garment to complete the hoop by connecting the said back straps.

17. A method in accordance with Claim 7 of producing a bra with shoulder straps, wherein the two straps are knitted first and are wale-fashioned at their inner end portions to form the top areas of the reciprocatingly knitted breast pouches, the bottom areas of the latter being formed by knitting part courses by a progressive needle picking technique.

18. A method as claimed in Claim 17, wherein is adopted a needle arrangement substantially as herein shown in Figure 11 of the accompanying drawings and the bar is knitted substantially as herein described.

19. A method in accordance with Claim 8 of producing trousers or drawers substantially as herein shown in Figures 12 and 13 of the accompanying drawings comprising the steps of first knitting a tube, commencing at K and continuing in the first instance sufficiently far to provide a trunk portion; causing two arcs of needles responsible for knitting wales O—Q and O¹—Q to hold their loops while needles at L—O and L¹—O¹ continue knitting by reciprocation separate yarns fed in at two knitting stations suchwise as to form selvages along edges L—M and L¹—M¹; thereupon causing progressive widening to take place until the wales P and P¹ are reached, thus forming sutures O—P and O¹—P¹; next progressively narrowing until only the needles of wales M—R and M¹—R¹ are knitting; introducing en masse the needles of wales R—Q and R¹—Q thus forming the sutures R—P and R¹—P¹; continuing the knitting of the tube until the end N is reached; cutting open the said tube by slitting it walewise from the selvaged edges L—M and L¹—M¹ to the ends K and N and laying the tube out flat; 130

- next cutting the reciprocatorily knitted portions transversely so as to form therein leg openings 32 and 33; folding the opened out blank along the line of the transverse cuts to bring the ends K—K¹ and N—N¹ into line with one another; and seaming the edges from the outer corners of the leg openings to the tops NK and N¹K¹.
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20. A one-piece article of swimwear or a foundation undergarment constructed and produced substantially as herein described with reference to and as shown in Figures 1—4 of the accompanying drawings.
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21. A one-piece jumper or the like constructed and produced substantially as herein described with reference to and as shown in Figures 5—7 of the accompanying drawings.
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22. A bra for swimwear or underwear constructed and produced substantially as herein described with reference to and as shown in Figures 8 and 9 of the accompanying drawings.
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23. A bra with shoulder straps constructed and produced substantially as herein described with reference to and as shown in Figures 10 and 11, of the accompanying drawings.
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24. Trousers or drawers constructed and produced substantially as herein described with reference to and as shown in Figures 12—15 of the accompanying drawings.

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FIG. 1.

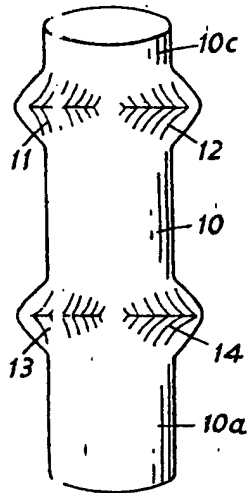


FIG. 2.

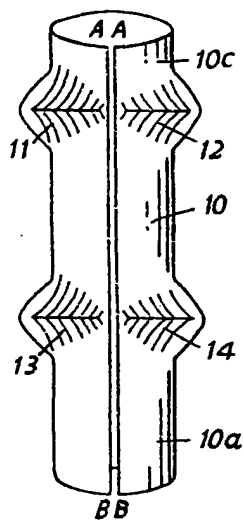


FIG. 3.

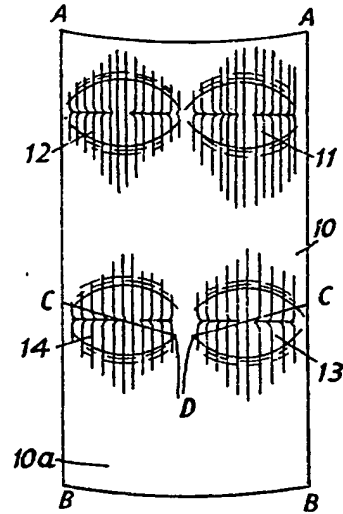


FIG. 4.

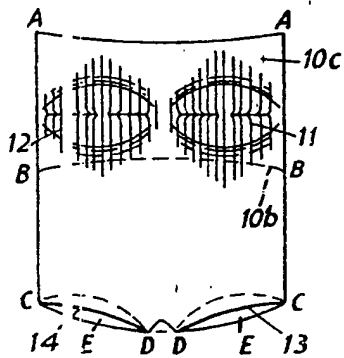


FIG. 5.

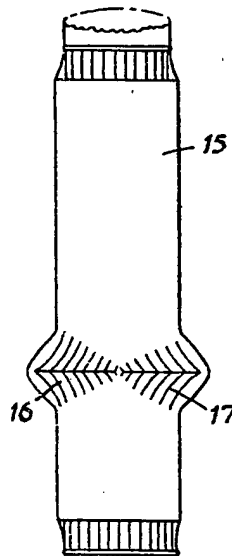
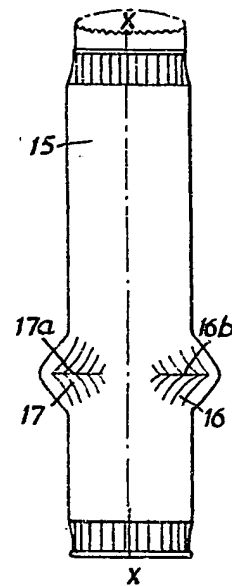


FIG. 6.



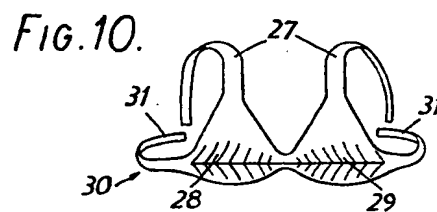
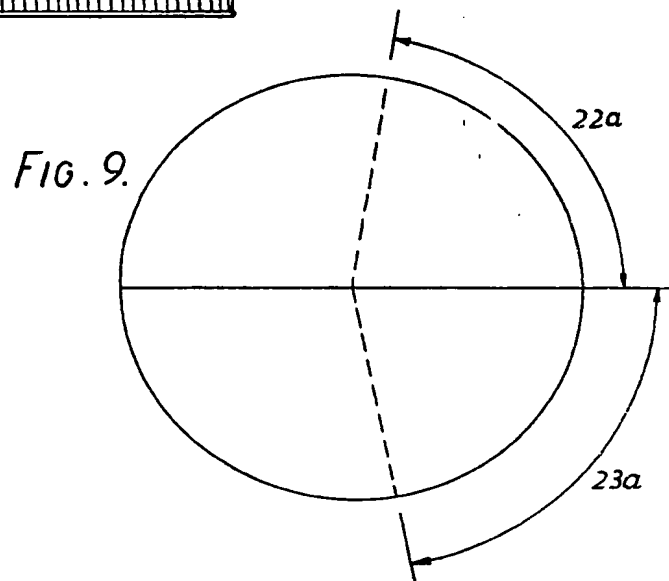
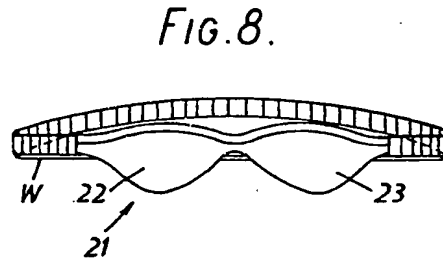
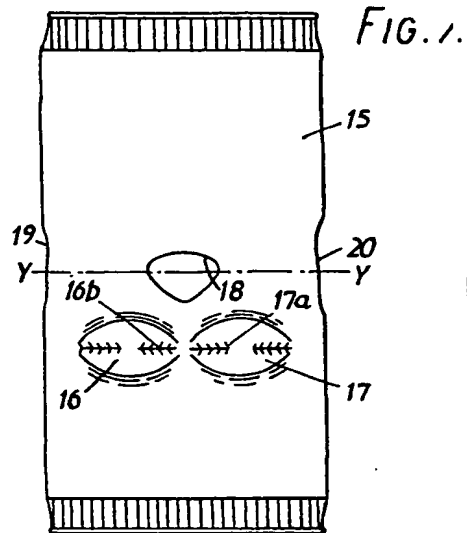


FIG.11.

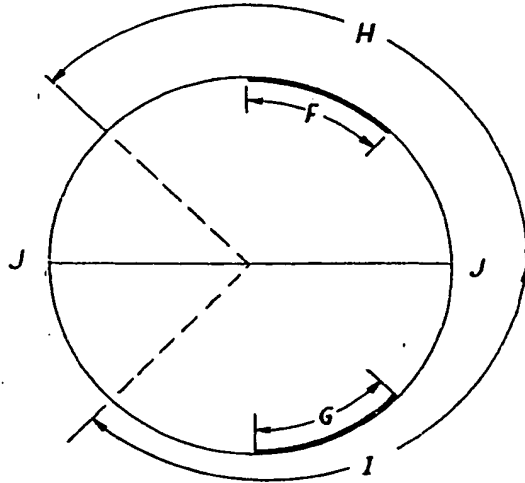


FIG.12.

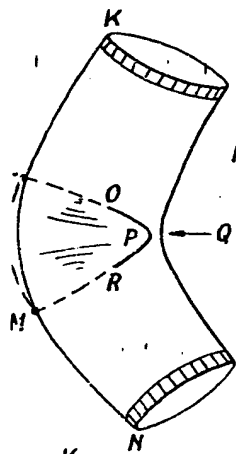


FIG.13.

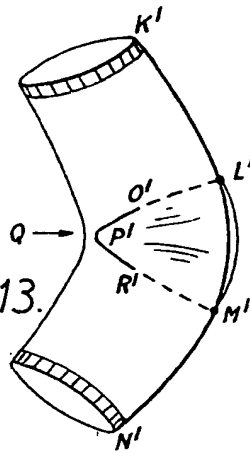


FIG.14.

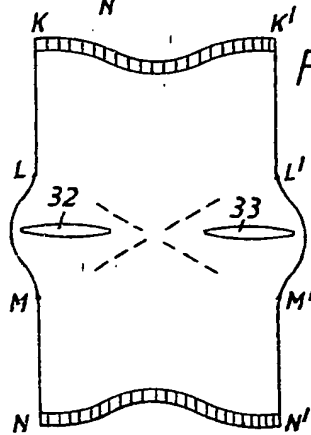


FIG.15.

